



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/705,450	11/02/2000	Jonathan S. Turner	39209	7885

26327 7590 11/17/2004

THE LAW OFFICE OF KIRK D. WILLIAMS
1234 S. OGDEN ST.
DENVER, CO 80210

EXAMINER

SCHEIBEL, ROBERT C

ART UNIT PAPER NUMBER

2666

DATE MAILED: 11/17/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

AK

Office Action Summary	Application No. 09/705,450	Applicant(s) TURNER ET AL.	
	Examiner Robert C. Scheibel	Art Unit 2666	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
 - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
 - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
 - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 November 2000.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-39 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 11-13, 16, 17, 19-28, 30-34 and 37 is/are allowed.
- 6) ☒ Claim(s) 1-3, 5, 6, 10, 14, 15, 18, 35, 36, 38 and 39 is/are rejected.
- 7) ☒ Claim(s) 4, 7-9 and 29 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Specification

1. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Objections

2. Claim 29 is objected to because of the following informalities: the phrase "placing the placing the" in line 5 should be changed to "placing the". Appropriate correction is required.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 14-15, 18, 35-36, and 38-39 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

5. Claims 14, 35, and 38 recite the limitation "the states of the second component" in lines 1, 1-2, and 1-2, respectively. There is insufficient antecedent basis for this limitation in the claim; the parent claim discussed only a single state of the second component. This rejection can be overcome by rephrasing the claims to explain that "the state of the second component can be one of...".

6. Claims 15, 36, and 39 are rejected as being indefinite as they depend on indefinite claims 14, 35, and 38.

Art Unit: 2666

7. Claim 18 recites the limitation "the state data structure" in line 1. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

9. Claims 1-3, 5-6, and 10 are rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent 6,526,060 to Hughes et al.

The applied reference has a common assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

Regarding claim 1, the limitation of a plurality of rate monitors to measure the rate at which traffic arrives for each of a plurality of outputs is disclosed in element 720 of Figure 7. The limitation of one or more state data structures indicating a state of each of the plurality of outputs of the packet switching system is disclosed in the QBin Length shown in Figure 5. The limitation of the rate-controlled virtual output queue for each output is disclosed in the VC queues with VC scheduler of Figure 5. These are virtual queues as described in lines 52-55 of

Art Unit: 2666

column 6 which explains that these are implemented merely as linked lists in RAM and not as separate special memory components (see lines 42-44 of column 6 as well). The limitation that the rate at which packets are sent to a particular destination is based in part on a measured traffic arrival rate and a state for the particular destination is disclosed in Figure 5; this clearly indicates that the fair rate (which is the servicing rate for the virtual output queues (VC queues)) is based on both the arrival rate and the state (QBin Length).

Regarding claim 2, the limitation of an input line card comprising the method of claim 1 is disclosed in lines 31-34 of column 6 which explains that although the description is focused on an output line card (egress circuit), the input line card (ingress circuit) is implemented similarly.

Regarding claim 3, the limitation that the state data structures maintain at least three different states is disclosed in the QBin Length which can have many different states, one for each possible value of the length (from 0 to the maximum queue size).

Regarding claim 5, the limitation that each of the rate-controlled virtual output queues includes a transmit list is disclosed in the linked lists described in lines 52-55 of column 6. These lists include the cells to be transmitted in the order they are to be sent to the QBin.

Regarding claim 6, the limitation that each of the rate-controlled virtual output queues includes a timing mechanism is disclosed in the parameter T in lines 31-32 of column 10. The virtual output queue must inherently contain a timing mechanism to be able to determine the algorithm period T.

Regarding claim 10, the limitation that the rate monitors include one or more data structures maintaining an indication of packet count and a reference time period are disclosed in the counts of lines 21-26 of column 10 and the algorithm period T in lines 31-32 of column 10.

Allowable Subject Matter

10. Claims 11-13, 16-17, 19-28, 30-34, and 37 are allowed.
11. Claims 4 and 7-9 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.
12. Claims 14-15, 18, 35-36, and 38-39 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action.
13. The following is an examiner's statement of reasons for allowance:

Regarding claim 11, the prior art of record fails to disclose the combination of sending received packets to the second component at a first rate approximately proportional to the arrival rate when the state data structure indicates the second component is in a first state, and sending received packets to the second component at a second rate less than the first rate and greater than zero, and approximately proportional to the arrival rate when the state data structure indicates the second component is in a second state. The closest prior art is U.S. Patent 5,884,890 to Delp et al which discloses a scheduling method for best effort traffic in which the relative proportion of data rates is maintained between streams. However, the proportional rates of the streams in Delp do not disclose the limitation that the first and second rates are proportional to the arrival rate at which packets destined for the second component arrive at the first component.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Art Unit: 2666

Conclusion


14. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.


U.S. Patent 6,337,851 to Charney et al discloses a scheduling method for in which the relative proportion of data rates is maintained between streams sharing a bottleneck link. U.S. Patent 6,674,726 to Kado et al describes an apparatus for monitoring the rate of an input flow.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Robert C. Scheibel whose telephone number is 571-272-3169. The examiner can normally be reached on Monday and Thursday from 6:30-5:00 Eastern Time.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Seema S. Rao can be reached on 571-272-3174. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

 11-8-04
Robert C. Scheibel
Examiner
Art Unit 2666


PAIR SYSTEM
703-872-9306